

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A catalyst system for converting a mixture of fuel, steam, and air to a hydrogen-containing reformat, comprising:

a first, upstream portion comprising a first autothermal reforming catalyst having a first lightoff temperature in the mixture of fuel, steam, and air;

a second, downstream portion comprising a second autothermal reforming catalyst having a second, higher lightoff temperature in the mixture of fuel, steam, and air;

a reactant mixture comprising fuel, steam, and air,

wherein the first and the second autothermal reforming catalysts promote autothermal reforming of the reactant mixture reacts and the difference between the first and second lightoff temperatures is at least about 25 deg. C.

wherein the first lightoff temperature is at least 25° C lower than the second lightoff temperature.

2. (Original) The catalyst system of claim 1 wherein the first and second catalyst portions are provided in a first housing and a second housing, the first housing being upstream of the second housing, the housings connected by a flow path for the passage of gas from the first housing to the second housing.

3. (Original) The catalyst system of claim 1 wherein the first and second catalyst

portions are provided in a common housing, with the first catalyst being upstream of the second catalyst.

4. (Previously Presented) The catalyst system of claim 1 wherein each of the first and second catalyst portions comprises a mixture of a low lightoff temperature catalyst and a high lightoff temperature catalyst, the first catalyst portion comprising a higher percentage of low lightoff temperature catalyst than the second catalyst portion.
5. (Currently Amended) The catalyst system of claim 1 wherein the difference between the first and second lightoff temperatures is at least about 50^oC [[deg. C]].
6. (Currently Amended) The catalyst system of claim 5 wherein the difference between the first and second lightoff temperatures is at least about 75^oC [[deg. C]].
7. (Currently Amended) The catalyst system of claim 6 wherein the difference between the first and second lightoff temperatures is at least about 100^oC [[deg. C]].
8. (Currently Amended) The catalyst system of claim 7 wherein the difference between the first and second lightoff temperatures is at least about 200^oC [[deg. C]].
9. (Currently Amended) A method for providing rapid startup in an autothermal reforming reaction, comprising:

providing a first autothermal catalyst portion for converting a mixture of fuel, steam, and air to a hydrogen-containing reformate conducting an autothermal reforming reaction, the first catalyst portion having a first lightoff temperature in the mixture of fuel, steam, and air;

providing a second autothermal catalyst portion for converting a mixture of fuel, steam, and air to a hydrogen-containing reformate conducting an autothermal reforming reaction in fluid communication with the first catalyst portion, the second catalyst portion having a second lightoff temperature in the mixture of fuel, steam, and air that is at least 25°C [[deg. C.]] higher than the first lightoff temperature;

heating at least part of the first catalyst portion to the first lightoff temperature; and

flowing a mixture comprising air and fuel the mixture of fuel, air, and steam over the heated first catalyst portion.

10. (Cancelled)

11. (Currently Amended) The method of claim [[10]] 9, wherein the steam is added to a mixture of fuel and air before the first catalyst portion has reached the first lightoff temperature.

12. (Currently Amended) The method of claim [[10]] 9, wherein the steam is added to a mixture of fuel and air after the first catalyst portion has reached the first lightoff temperature.